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Citation for published version:

Romankiewicz, T 2018, 'Room for ideas: Tracing non-domestic roundhouses', *Antiquaries Journal*, vol. 98, 2, pp. 17-42. <https://doi.org/10.1017/S0003581518000148>

Digital Object Identifier (DOI):

[10.1017/S0003581518000148](https://doi.org/10.1017/S0003581518000148)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Antiquaries Journal

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Room for Ideas: Tracing non-domestic roundhouses

Tanja Romankiewicz

(ORCID 0000-0002-6401-5178) T.Romankiewicz@ed.ac.uk @BldAncientLives

University of Edinburgh

School of History, Classics and Archaeology

William Robertson Wing

Old Medical School

Teviot Place

Edinburgh EH8 9AG

Iron Age studies in Britain operate in a world populated by roundhouses. Post-ring evidence is generally interpreted in domestic contexts. However, research on later prehistoric roundhouses in northeast Scotland has identified a small but significant number of round structures in unusual locations, with unusual architectural details and a distinct lack of domestic material. Some of these relate to Chalcolithic and Early Bronze Age stone circles, for which Richard Bradley's work in the wider region has highlighted progressive biographies of construction and reuse. This paper, rooted in architectural design theory, selects a particular case study, the multiple timber post-rings at Candle Stane, Aberdeenshire, to highlight the complexities in interpreting these interesting yet enigmatic buildings. The architectural approach develops alternative reconstructions that lead to new perspectives on later prehistoric architecture as event-based and concerned with process. These processes only gradually lead to an architectural end product, which displays distinctly non-domestic connotations. The research not only highlights the usefulness of data derived from rescue work for academic study, but the advocated approach of reconstructing in alternatives also lends itself for developing innovative approaches in Higher Education to teach visual competence.

Structures clearly dedicated to ritual functions can be identified from the Neolithic onwards, but in Britain this evidence seems to decline from the Middle Bronze Age, coinciding with a

growing emphasis on settlement architecture¹. The current paradigm is that by the Iron Age, monuments by and large had given way to houses, removing the visibility of specialized ritual architecture which seemingly became embedded within the roundhouse idiom.² It is now also widely accepted that ritual practice penetrated all aspects of everyday life,³ although the precise contemporaneity of ritualized structured deposition coinciding with domestic activity can be questioned when investigated in detail.⁴ Furthermore, Bradley identified trends in the south that compare with Danish and continental Iron Age data in which ritual revolved around features associated with agricultural production such as granaries or storage pits, rather than around narrowly-defined domestic activities.⁵ Roundhouses specifically dedicated to ritual or ceremonial functions are still rarely identified⁶. Circular post-rings of later prehistoric date are generally interpreted as roofed round *houses*,⁷ in contrast to the Neolithic and Early Bronze Age, where specialized ritual architecture in the form of timber circles is ubiquitous and characteristically interpreted as open air monuments.⁸ While Bersu proposed a roof over the multiple post-ring structures on the Isle of Man and saw them as Iron Age domestic sites,⁹ ideas about roofing Woodhenge or the timber circles at Durrington Walls have noticeably receded in academic discussion as their ritual use and comparison with open air stone circles and henges have been emphasized.¹⁰ Neolithic discussions about roofability and possible domestic contexts gravitate towards the Early Neolithic Timber Halls in Scotland, their comparison with Later Neolithic related structures¹¹ and the square-in-circle buildings as also exemplified at Durrington Walls, Greenbogs, Aberdeenshire, Wyke Down, Dorset and others.¹² Comparable depth of debate is in effect rare in British Iron Age studies. That post-rings were roofed and hence domestic in function seems the general default position. This paper interrogates this paradigm, using a few specific examples that draw such

¹ Bradley 2007, 187–202.

² Bradley 2005, 188.

³ Bradley 2005, 120; Harding 2009, 221; Chadwick 2012, 293–6, 300–3.

⁴ Webley 2007.

⁵ Bradley 2005, 165–76.

⁶ Harding 2009, 219–42.

⁷ Ibid, 224.

⁸ Bradley 2011.

⁹ Bersu 1977, 84, 88 see below.

¹⁰ Parker Pearson et al. 2007, 630–1, 635–6; but compare Musson 1971 or Pollard 1992, 216, building on earlier work by Piggott.

¹¹ Brophy 2007; Barclay et al. 2002, especially pp. 98–110, and the contribution by D Hogg pp. 111–114 highlighting the uncertainties regarding the roofing of the Early Neolithic structure at Claish.

¹² Noble et al. 2007, 153–5.

conclusions into question and proposes a series of alternative interpretations to stimulate debate over ambiguous evidence.

ROUND HOUSES, ROUND-HOUSES, ROUNDHOUSES: CASE STUDIES FROM NORTHEAST SCOTLAND

The fertile lowland areas of Scotland's south and east have attracted settlement for thousands of years. People have worked these lands, built and rebuilt homes and consequently compromised the archaeological evidence of earlier periods. Because of this development pressure in these areas, their archaeological record has become dominated by rescue work, which by its nature is limited in scale to the affected area. As Bradley, Gosden and their colleagues demonstrated, such records still present important data for prehistoric archaeological research.¹³ For the author's study, focused on northeast Scotland, the rescue excavation record was not only useful for large-scale analysis, but also to address specific research questions in detail, highlighting a small number of sites that stood out from the general roundhouse evidence. This prompted the present enquiry into whether round timber structures of later prehistoric date would have *necessarily* been used as prehistoric round *houses*. What may appear as playing with semantics is in fact an important distinction to be clarified to ensure the use of terms consistent with the argument: the spelling "roundhouse" is adopted here as a technical, but not descriptive term.¹⁴ It neither implies strict circular geometry nor insists that such structures were *per se* domestic. The term "non-domestic" similarly requires definition. "Domestic" is understood here broadly to include such direct associations as cooking, eating, and sleeping, but also related daily processes of industrial and agricultural function such as represented by workshops, barns or byres; essentially all basic activities that would sustain a household.¹⁵ The "non-domestic" attribute is used for structures with a communal or ceremonial use context. This would not necessarily exclude evidence for food processing, eating, and certain industrial processes, but the difference to the daily domestic activities lies in their non-regular occurrence, often described under terms such as feasting or ritual metal-working performances.

¹³ Bradley 2007; Bradley et al. 2015; Ten Harkel et al. 2017.

¹⁴ Compare Harding 2009, 27.

¹⁵ Compare ScARF 2012.

NON-DOMESTIC ROUNDHOUSES?

How embedded interpretations of circular post-built structural remains as later prehistoric houses are is exemplified by the Candle Stane site, near Inch, ca. 40km northwest of Aberdeen (fig 1). This case study has been selected to investigate the limitations and potential of the non-domestic roundhouse ideas in detail. The site comprises of a Recumbent Stone Circle, now identified as part of a regional class of monuments dating to the Chalcolithic and Early Bronze Age.¹⁶ Unauthorised quarrying in its vicinity in the 1990s exposed a series of postholes and triggered an archaeological rescue investigation immediately southwest of the stone circle.¹⁷ Results were interpreted as evidence for a circular structure marked by posts and a curvilinear, enclosing slot, presumably supporting timber uprights (figs 2 and 3). The excavator reflected at the time:

The physical juxtaposition of a major stone monument of the Neolithic [sic]¹⁸ period with a circular timber structure initially suggested that the latter was earlier than, or contemporary with, the stone circle and thus akin to ceremonial timber rings [...]. The radiocarbon dates demonstrate that this is not the case. These fall within the first millennium BC on calibration and indicate that the timber structure should be accommodated within the familiar British Later Bronze Age and Iron Age tradition of timber-framed, circular, roofed buildings. [...] On the basis of known parallels and of the radiocarbon dating results [...] it would appear that the post-ring and ring-groove on Candle Hill represent a large, roofed, building of Iron Age date.¹⁹

This reaction by the excavator to the radiocarbon dates is common and by no means singled out here as unusual.²⁰ The standard interpretation is that “the remains on Candle Hill represent the reuse of an earlier predominantly ritual site by a later settlement” and the excavator notes that it would have been “an ideal setting for a house”.²¹ Cameron highlights other Iron Age reuses of early prehistoric monuments, and refers to Hingley’s interpretation of such practice as a deliberate association with older traditions.²² Being only slightly larger

¹⁶ Bradley 2005.

¹⁷ Cameron 1999.

¹⁸ In 1999, Recumbent Stone Circles were still understood as Neolithic.

¹⁹ Cameron 1999, 367-9.

²⁰ Compare Harding 2009, 27-8; Bradley 2012, 161, 179 on general perceptions.

²¹ Cameron 1999, 370.

²² Ibid, 369.

in diameter than the average round *house*, but still roofable with support of an internal postring combines with evidence for longevity of use in the form of “repair and renovation”.²³ All this adds to the overall impression that the timber structure at Candle Stane could well have been built as a later prehistoric domestic roundhouse. However, acknowledging the complexities of the site, Cameron emphasizes the “lack of any artefactual evidence whatsoever” to open the possibility “that the structure was not used for a domestic purpose”.²⁴ In her conclusion, she acknowledges that the posthole evidence was best interpreted as “an Iron Age building”, rather than necessarily a house and underscores “its proximity to the earlier ritual monument” as the “single most important aspect of the timber structure”.²⁵

The Candle Stane case study can help identifying a number of aspects to discern a later prehistoric house from a building of non-domestic function.²⁶ To identify a round *house*, one would expect structural evidence for the potential to enclose the building against the weather with an outer wall and roof. The feasibility to roof such a space using materials and technologies available in prehistory limits a circular structure (or its internal, load-bearing post-ring) to a free-spanning diameter of around 20m, requiring sophisticated roofing constructions; a simple rafter roof as typically reconstructed could realistically span only about 12.5m without additional structural support.²⁷ In addition, the building should also be associated with a source of energy and domestic items of material culture. The former could be a hearth or cooking pit, to prepare meals, provide light, warmth and dry air, and possibly produce smoke for disinfection of the roof space and preservation of foodstuff.²⁸ The domestic objects would include a range of utensils and tools for preparing and consuming foodstuff, or small quantities of tools used for domestic industries. One may also add signs for internal erosion and cut features resulting from prolonged human occupation and repetitive uses, and indicators for structural repairs as evidence of longevity of use to positively identify a domestic structure. These ‘domestic markers’ suggest that the key aspects of a prehistoric house were protecting, structuring and providing for everyday life.

²³ Ibid, 370.

²⁴ Ibid, 370-1.

²⁵ Ibid, 371.

²⁶ Compare Harding 2009, 27-8; Millican 2007 for similar debates regarding Neolithic evidence.

²⁷ Romankiewicz 2011, 1; Neumann and Weinbrenner 1993, 31. Compare successful reconstruction of 13m structure without internal post-ring at Castell Henllys, Pope 2003, 101.

²⁸ Compare Pope 2003, 252-3.

For the truncated archaeological remains in Britain's arable areas, the common evidence from rescue excavations, the surviving evidence is, however, often too ambiguous to confirm whether wear patterns or a hearth were removed by later ploughing or never existed in the first place.²⁹ Even basic matter like the identification of an outer wall line to determine house diameters has proven difficult. For instance, for a total of 26 roundhouse structures excavated at the development site at Forest Road, Kintore, Aberdeenshire, 11 had no evidence for typical "house" markers such as presence of domestic artefacts or energy source or even an identifiable outer wall line. This represents about 42%,³⁰ and raises the question whether we can and should interpret such fragments as domestic roundhouses or be more cautious when interpreting heavily truncated remains. The implications are that we risk overestimating the number of houses and thus overpopulating later prehistory. There is also the danger that the current Iron Age paradigm of ritual being integrated into the domestic closes off an underexplored area of alternative interpretations for ambiguous sites, narrowing our interpretations of Iron Age lifeways.

While markers to identify a round *house* can be positively defined, their absence is much more difficult to understand. A similar list of positive identifiers of non-domestic roundhouses would be needed. Writing in 2007, Dunwell acknowledged that roundhouses would not necessarily all had to have domestic functions. He suggests that variation in size could indicate differences including "non-domestic communal use".³¹ However, at the time he could find "no convincing supporting archaeological evidence for non-domestic roundhouses in southern Scotland".³²

In his Britain-wide analysis at around the time of Dunwell's southern Scottish assessment, Harding dedicates a whole chapter to what he identifies as "houses fit for gods and heroes".³³ Quoting Venclovà,³⁴ he lists five criteria to identify a non-domestic structure, four of them as positive markers: associated evidence of (1) structured deposition of votive offerings, (2) architectural and locational distinctiveness, (3) sculpture or icons, (4) immediately subsequent religious use of the building or its stance, so-called "retro-

²⁹ Harding 2009, 27.

³⁰ See Cook and Dunbar 2008; for northern Britain see Pope 2003, 253, 267, 384: 38% of c.1200 roundhouses had no hearth, 23% no evidence for hearths or domestic material culture. She interprets most of these as ancillary to houses or of seasonal use.

³¹ Dunwell 2007, 98.

³² Ibid.

³³ Harding 2009, 219-42.

³⁴ Venclovà, 1993.

inference”, (5) no evidence of domestic activities.³⁵ However, for the British Iron Age, Harding denotes a lack of architectural distinction between houses and what he describes as “temples” and “shrines”, because “the absence for the most part in temperate Europe and Britain of any formal architectural expression of ritual may be a reflection of the fact that religion was implicit in the social system and in the natural environment”.³⁶ As an example, he lists the site at Fison Way, Thetford, and although highlighting its unusual architectural features, he assumes that the site “may still have fulfilled a primarily residential domestic role”.³⁷ Similarly, he identifies ritualized structured deposition within domestic roundhouses, following commonly accepted views that domestic and ritual functions blurred in later prehistoric Britain.³⁸ This leads Harding to conclude for the northern British evidence that “only very seldom does the ritual dimension appear to dominate”.³⁹ However, can all evidence for later prehistoric post-rings and ring-grooves inevitably be reconstructed as domestic round *houses*, and were substantial structures necessarily “chieftain houses” with combined domestic, communal and ritual functions?⁴⁰ The evidence may require more critical review, especially since Harding subsequently concludes that “it is clear that there are instances of circular buildings for which a ritual dimension may be suggested, either on account of aspects of their architecture, or of their locational relationships, or of material associations and deposits,⁴¹ thus alluding to the potential of architectural design as a marker to distinguish ceremonial structures.

To identify non-domestic roundhouse design, construction and communal or ceremonial use in arable areas, the truncated evidence would need to fulfil a number of criteria to make an informed guess.⁴² Architectural distinction and locational relations may be the most profitable lines of enquiry for later prehistoric Scotland, especially when analysing truncated remains from rescue work. Other markers on Venclovà’s list are too ambiguous or inadequate. Sculpture or iconic representations, for example, are very difficult to define; certainly no evidence in a Classical, Provincial Roman or Continental Iron Age sense is known from Scottish roundhouse sites. Portable Neolithic rock-art has occasionally been

³⁵ Harding 2009, 219, 222.

³⁶ Ibid, 221.

³⁷ Ibid, 230.

³⁸ Recent discussion in Bradley 2016a, 126-7.

³⁹ Harding 2009, 230, although his focus regarding this statement is on Atlantic Scotland.

⁴⁰ Contra *ibid*, 224.

⁴¹ Ibid, 229-30.

⁴² See *ibid*, 221.

incorporated in constructions, such as in the inner wall at Torwood broch near Falkirk⁴³ or at the entrance of roundhouse 1 at Aldclune⁴⁴, but the overall context of these buildings seems domestic. Similarly, most decorated artefact depositions associated with structural remains appear in domestic settings, such as the painted pebble from an unambiguous round *house* at Birnie, Moray.⁴⁵ Reuse by Roman or early Christian shrines that would allow a retro-inference of ritual contexts as Harding argued are not documented yet.

Taking together, the various analyses and suggestions on how to positively or negatively identify later prehistoric non-domestic roundhouses the following list of factors can be distilled:

Positive identifiers:

- (1) architectural distinction including size, construction type, and use of materials
- (2) locational relations including landscape situation but also spatial relation with earlier or contemporary non-domestic structures, or evidence of later ones reactive to the one in question
- (3) ambiguous evidence regarding walls and roof which would otherwise provide three-dimensional enclosure

Negative identifiers:

- (4) lack of energy source
- (5) lack of domestic material in unstructured deposition

Possible identifiers:

- (6) exotic artefacts without domestic associations in contexts suggesting structured deposition
- (7) retro-inference of ritual connotations from later documented evidence
- (8) iconic representation or sculpture present

Despite the limits of the truncated evidence, is there a way forward then to identify solely non-domestic structures in later prehistoric lowland Scotland? Have we reached the limit of our interpretations of fragmented remains or is there still room for ideas? The present paper argues that positive identifiers such as architectural and locational details are key to address the ambiguity presented by the absence of domestic evidence. The following case study

⁴³ Cavers & Hudson 2014, 4, Figure 5, Plate 8.

⁴⁴ Hingley 1997, 450-1.

⁴⁵ Hunter 2009, 23.

analysis suggests that an architectural reappraisal of ambiguous structures can provide some progress.

The question of whether there was an as yet underestimated quantity of non-domestic timber roundhouses in later prehistoric Britain also gains momentum in the context of the “Building (Ancient) Lives” study into sustainable management of building resources.⁴⁶ Results of the investigation into non-domestic roundhouses may add to the understanding of why the expenditure of material and labour plus the obliteration of agriculturally favourable land by building non-domestic structures were accepted or acceptable. This is particularly interesting if the construction of buildings beyond immediate subsistence was much more widespread than anticipated and thus far fewer roundhouses lived in⁴⁷. Evidence discussed here may be sparse, but seems to coincide with the Early Iron Age period, in which various factors are taken to indicate a change in economic and social conditions in Britain. Practices seem to change as evidence for objects and their structured deposition appears rarer, while more evidence for food storage or byres emerges, perhaps representing a shift towards more resolute subsistence strategies.⁴⁸ Identifying increasing numbers of non-domestic roundhouses may suggest these changes were more complicated than the *prima facie* Early Iron Age tendencies have us believe.

CASE STUDY CANDLE STANE, ABERDEENSHIRE: STONE AND TIMBER CIRCLES

In 1996/97, a rescue excavation at Candle Hill revealed a series of timber post-rings and a ring-groove fragment about 4m to the southwest of a Recumbent Stone Circle known as Candle Stane (fig 2).⁴⁹ The multitude of postrings constitutes an unusual architectural arrangement in Aberdeenshire, and such close proximity of an Iron Age timber structure to an earlier ceremonial monument raises questions regarding its character, construction and conception. Since Cameron’s publication in 1999, Bradley has demonstrated an architectural complexity to Recumbent Stone Circles that she would not have been aware of and he re-dated these to the Chalcolithic and Early Bronze Age, between 2500 and 1800 BC.⁵⁰ It is

⁴⁶ Romankiewicz 2016.

⁴⁷ Compare comment in Lynn 1997, 220.

⁴⁸ Haselgrove and Pope 2007, 7, 18; compare Romankiewicz 2011, 203; Tipping et al. 2012.

⁴⁹ Cameron 1999, 362. Welfare 2011 refers to it as Candle Hill.

⁵⁰ Bradley 2005, 99, 101; 2016b, 118.

towards the end of this period that the earliest, unambiguously domestic round houses appear in Aberdeenshire, such as at Deer's Den and Forest Road near Kintore.⁵¹

Bradley's work not only established a new sequence of when but also of how Recumbent Stone Circles were built. Having identified consecutive construction events separated over a period of time, he recognized convincing design references between individual structural elements of different phases. This suggests that the final appearance of these monuments was already conceptualized when construction first began, but was only sequentially completed.⁵² Exemplified at Tomnaverie,⁵³ the sequence starts with burning events.⁵⁴ The area was then covered by a kerbed cairn, here with an open centre, and buttressed by a rubble bank against the outer kerb.⁵⁵ This cairn created radial segments, which later formed the axial alignments for some of the monoliths of the subsequently added stone circle.⁵⁶ Bradley noted subtle relationships between the stone types and colours of the monoliths and the original kerbstones, emphasized by their mutual grading of height towards the southwest.⁵⁷ A pair of uprights formed the tallest part of the stone circle, and created allusions to a gate or entranceway.⁵⁸ The final architectural acts at these sites included the closure of this 'gate' with a large horizontally placed monolith, the so-called recumbent stone. Bradley interprets this arrangement as a deliberately closed door.⁵⁹ This sequence of events completely reverses previous interpretations in which the stone circle was regarded as primary.

Bradley's identification of Recumbent Stone Circles as representing a sequence of pre-planned architectural events greatly expands our understanding of the complex processes underlying Bronze Age architectural design. Such monuments were seemingly not conceived as to be completed in one construction phase, but as an arena for consecutive structured activities that manifested in very specific, pre-designed architectural expressions over time.

The Recumbent Stone Circle at Candle Stane is less well preserved than other examples, and has not seen modern excavation (fig 2). Only one stone, the Candle Stane itself, is still in its original position. Survey and reinterpretation led by Welfare confirmed an

⁵¹ Cook and Dunbar 2008.

⁵² Bradley 2005, 49; 2016a, 115.

⁵³ Bradley 2005, 15-33, 48-52.

⁵⁴ Ibid, 16; compare *ibid*, 105 *reg.* chronology of cremation pyres.

⁵⁵ Ibid, 17-20. Most Recumbent Stone Circles contain a ring cairn. Tomnaverie is exceptional, as its topography did not necessitate an internal kerb.

⁵⁶ Ibid, 21; 24, 30.

⁵⁷ Ibid, 20, 28-30, 51.

⁵⁸ Bradley 2016b, 115.

⁵⁹ Bradley 2005, 105-6, also for distinction between architectural closure and reuse; 2016b, 118-9.

estimate of the circle's diameter as 15.5m and as having originally consisted of a total of nine or ten stones.⁶⁰ Underneath the spoil from the modern quarrying, which now occupies the stone circle's central area, Welfare detected remains of the original cairn as a "slight swelling in the ground".⁶¹ The cairn's dimensions, although not explicitly recorded, can be extrapolated from the drawn profile and the typical evidence of this monument type. It would have probably covered an area of ca. 13m in diameter (see fig 2).⁶²

Cameron's excavation to the southwest of the stone circle exposed about 40% of an Iron Age timber structure (fig 3). The remainder had been lost to quarrying.⁶³ The array of postholes excavated by Cameron has been interpreted as representing roughly concentric timber rings.⁶⁴ The outermost circle, a curvilinear ring-groove with perpendicular slots breaking its circumference in the southeast, was interpreted as its outer wall and elaborate entrance. Although Cameron eludes to other alternative interpretations, her paper concentrates on the reconstruction of a series of contemporary timber rings, encircled by a ring-groove wall.⁶⁵

There is of course an almost infinite number of ways to combine the myriad of postholes on a variety of diameters. The following exemplifies alternative sequences that seem more likely than others, taking into account the radiocarbon dates and architectural design references to the nearby stone circle. While as speculative as all reconstructions of such truncated remains, it is hoped that by discussing alternatives a richer picture of prehistoric architecture can be presented than a single interpretation could achieve.

ALTERNATIVE INTERPRETATION 1: A SERIES OF OVERLYING STRUCTURES REFERENCING SPACE THROUGH TIME

If reconstructed as a continuous feature, the ring-groove would have had a diameter of 15.5m, exactly the same as Welfare recorded for the circle of stones of the Recumbent Stone Circle.⁶⁶ The congruence seems too much of a coincidence to be accidental, and suggests a

⁶⁰ Welfare 2011, 322.

⁶¹ Ibid.

⁶² Ibid, 323.

⁶³ Cameron 1999, 360, 368.

⁶⁴ Ibid, Illus 2.

⁶⁵ Ibid, 368.

⁶⁶ Ibid, 322.

deliberate reference.⁶⁷ The ring-groove's centre point would sit immediately on the north-facing trench edge (fig 4). A concentric inner circle of 11m diameter coincides roughly with a series of six postholes F10-F15. With about 2m spacing between each post, a seventh could be extrapolated in the area of pit F48.⁶⁸ The large pit may have removed a post in this location or the flat stones in its top fill supported a post on top. In any case, the use of pit F48 seems not to have been contemporary with this 11m postring.

Another concentric circle can be outlined with a diameter of ca. 8m. Cameron reconstructs this as off-centre from the ring-groove and includes posts F16-F22.⁶⁹ However, a truly concentric 8m circle is also possible, including only posts F18 to F22. The larger spacing between F21 and F22 coincides with the western edge of pit F48, which may suggest this gap respected the pit outline, implying that the pit was open when this postring was constructed. This renders it less likely that the 8m and 11m postrings were contemporaneously built. A small stake F44 immediately north of post F14 next to pit F48 could have acted as a prop for the larger post during construction or repair. F45, although larger than stake F44, could have provided similar support for post F22.

If, however, the 8m and 11m postrings and the ring-groove were all contemporary, this would create a rather unusual triple-ring roundhouse.⁷⁰ A more typical roundhouse arrangement, especially in Scotland, is that of a single internal postring and outer wall groove, with a radius ratio between postring and outer wall of about 1/3 peripheral to 2/3 central space.⁷¹ According to Hill's ratio, a roundhouse of 15.5 m diameter would ideally have a postring diameter of 10.95m, very close to the 11m postring at Candle Stane. However, Pope's 2003 analysis identified a tendency for larger peripheral areas for structural or spatial advantages.⁷² In this case, the internal postring for a 15.5m roundhouse could have a minimum diameter of 9.45m. The 8m diameter of the inner postring at Candle Stane would still fall short of this structural template. If ring-groove and 8m postring were contemporary and roofed over without the 11m postring support, this would result in a rather large outward load for the ring-groove wall, requiring more sophisticated engineering than for a typical

⁶⁷ Welfare 2011, 322 notes dimensions but does not comment on their similarity; only Bradley 2016a, 125 confirms observation of present author. The copying suggests Iron Age explorations of the dimensions of the older monument.

⁶⁸ Cameron 1999, 365-6.

⁶⁹ Ibid. This 7m diameter ring would be concentric with a 13m circle outlined below (F2-F9).

⁷⁰ Only 3% of northern British roundhouses were of triple-ring construction, even those may need reinterpretation, Pope 2003, 105.

⁷¹ Ibid, 116-7. Hill's factor is 1:0.707; Pope's is 1:0.61.

⁷² Ibid, 116.

rafter roof.⁷³ Neither the 8m nor the 11m diameter are recognizable in the Recumbent Stone Circle dimensions.

At least a further eight postholes could be conjoined into another circle of 13m diameter: F2, F3, F4, F5, F6⁷⁴, F7, F8 and F9 (fig 5). If truly aligned with the individual postholes, this postring would not be concentric with the ring-groove and associated postrings, which may suggest a separate structure.⁷⁵ Its centre point would sit about 0.5 m northeast of that of the ring-groove. This 13m postring also sits so closely against the ring-groove in places,⁷⁶ that it would not have provided any structural or spatial advantages for a typical round *house* construction. Its relation to the ring-groove and its 13m diameter may also roughly mirror the estimated diameter of the cairn and its position within the Recumbent Stone Circle.

The repeated recutting of the entrance area and the two radiocarbon dates from a pit associated with it, which only minimally overlap chronologically, correspond with the hypothesis of at least two main but separate phases of postring structures at Candle Stane.⁷⁷ Although the entrance orientation of the timber structure(s) and the stone circle are not congruent⁷⁸, there may be parallels in their architectural conceptions. The timber entrance includes two parallel slots connecting paired posts, which could have supported a porch or gateway passage (see fig 4). Recuts and modifications reduced its width to under 1m.⁷⁹ The large pit complexes F33/34 and F32 curiously ran across the external opening. While it is unclear what these pits would have contained or supported, their location would have complicated or blocked access. By creating holes or supporting screens in front of the entrance, the pit complex may have provided closure,⁸⁰ reminiscent of Bradley's interpretation of the recumbent setting as symbolising a closed door. Similar evidence for deliberate closure or blocking of access routes is also known from northern Scottish henges of Bronze Age date.⁸¹ The two phases and associated dates of the entrance pits at Candle Stane neatly fit with the dates for its two main structural phases, the larger post-ring followed

⁷³ See Neumann and Weinbrenner 1993, 33.

⁷⁴ Dated 380-100 cal BC (AA-28368) and 400-190 cal BC (AA-28369) at 95% probability; Cameron 1999, 367.

⁷⁵ Contra *ibid*, Illus 2.

⁷⁶ As little as 0.25m.

⁷⁷ Phase 1: 760-390 cal BC (AA-28370); phase 2: 400-200 cal BC (AA-28371) at 95% probability, *ibid*, 367, 371. The early date for F47 cannot be reconciled with any regular postring.

⁷⁸ The southeast (timber) and southwest (stone) orientations conform to respective monument class.

⁷⁹ *Ibid*, 369.

⁸⁰ Compare Hunter 2009, 22.

⁸¹ Compare Bradley 2011, e.g. for Pullyhour, Caithness, where "the entrance was neatly blocked laying two layers of stone over the causeway" p.130.

by the ring-groove and concentric post-rings discussed above. Accordingly, the re-cutting of the entrance pits may imply that each phases received its own closure. What emerges from this evidence suggests a sequence of superimposed timber circles in approximately the same spot with elaborate entrance arrangements, which materialize use, closure, and reuse through time. Following the prevalent paradigm that ritual was integrated within the later prehistoric domestic sphere, these structures could well have resembled domestic round houses.⁸²

With regards to their sequence, the lack of postpipes and the homogenous posthole fills of the 13m ring suggests that its posts were not left decaying *in situ* but deliberately removed.⁸³ Although the dates from posthole F6 would fall within the main second phase, the dated material may have been residual, entering the posthole when the 13m postring was dismantled, in all likelihood at the beginning of this second main phase to clear the site for the ring-groove construction. This interpretation would mirror the built sequence of the Recumbent Stone Circle closely, i.e. the 13m timber circle may be copying the cairn as one of the earliest structural elements in the sequence. The 15.5m ring-groove, which mirrors the stone circle diameter, would be secondary, as was the stone circle to the cairn. The 11m post-ring may be contemporary with the ring-groove, together effecting a roundhouse, but because pit F48 seems not contemporary with this, the 8m post-ring corresponding with pit F48 is likely to represent another separate phase. Alternatively, if following Cameron's 7m diameter alignment, this post-ring may have been contemporary with the 13m ring (see fig 5).

ALTERNATIVE INTERPRETATION 2: GENERATING AMBIVALENT SPACES AT TIMES

If the timber circles at Candle Stane represented separate, consecutive structural elements, one may speculate about the degree of enclosure that they provided. Dimensions of 8m, or 11m, could be roofed with a typical rafter roof; 13m and 15.5m are not impossible to roof with Iron Age technologies but would require more sophisticated constructions as mentioned above.⁸⁴ The question is therefore not whether they were roofable, but whether they were *necessarily* roofed. A similar argument has arisen for Neolithic Timber Halls. Both Early and Late Neolithic rectangular structures have a width of roughly 10m. In fact, the striking similarity between the earlier and later 'Halls' in overall dimensions seem a deliberate

⁸² Compare Bradley 2016a, 127: "buildings indistinguishable from other roundhouses were erected on the sites of older stone circles [...] [as] [t]here was no longer a separate style of public architecture".

⁸³ Cameron 1999, 365, 370-1.

⁸⁴ Compare Romankiewicz 2011, 163-5.

reference, despite the time gap between them.⁸⁵ A 10m span is entirely feasible for a rafter and tie-beam construction, even if the outer walls were not as substantially built as for the earlier examples. It is rather the difference in spatial layouts, which distinguishes them. The later ‘Halls’ lack the quantity and quality of internal building elements that would have regulated the use of their interior. Similarly at Candle Stane, it is the quality of space that the different postring and/or ring-groove structures could have provided that require investigation. This aspect discerns the present analysis from more structurally-orientated research into prehistoric architecture in Scotland.⁸⁶

Recumbent Stone Circles illustrate how the setting of individual structural elements (monoliths) can demarcate space and volume without the need for oblique, rigid enclosure, simply allowing for a visual connection of similar elements via architectural design. By aligning the monoliths on a circle and providing a formal entrance façade with the recumbent and its flankers, access, views and orientation can be guided and regulated, space boundaries can be defined and ordered, and visually and as well as physically experienced. This creation of three-dimensionally defined space by deliberately avoiding physically impregnable screens is identified in architectural design theory as *elementare Raumgenese* (‘elementary space genesis’).⁸⁷ Between the two extremes of the tangible shell that delineates the external architectural volume and the experience of space as an internal cavity, exists a third category. Ambivalent or polyvalent space breaks down such boundaries in favour of a permeable threshold zone. Given the architectural parallels between the stone and timber circles at Candle Stane, similarities may also be postulated for their spatial designs. As the visual symbiosis of the monoliths merges them into a built structure, so could the timber posts become a spatial corporality. When inside the ring of monoliths (or posts), their height creates a three-dimensional void. This height was graded for Recumbent Stone Circles towards their southwest entrance. The posthole depth of a timber circle built in the Middle Bronze Age outside the henge monument at Broomend of Crichtie, Aberdeenshire, suggests graded posts towards the northeast and the henge monument.⁸⁸ Similar grading could therefore be suggested for any of the timber rings at Candle Stane, referencing the nearby stone circle in design and its spatial as well as constructional elements.

⁸⁵ See Brophy 2007, 88, referring to an “architectural vocabulary” that may have “endured across many centuries”.

⁸⁶ E.g. Barber 1992, 1997.

⁸⁷ Fonatti 1995, 27, 30.

⁸⁸ Bradley 2016b, 118. See also Mercer 1981, 150-2, Fig 51 for height grading of timber henge towards the west at Balfarg Circle A.

Thus, the different rings may at times have created permeable spaces, mirroring the spatial character of the ring of monoliths.⁸⁹ At other times, different architectural elements may have provided a more tangibly defined enclosure. Although mirrored on the physical dimension of the stone circle, these replicated perhaps a typical contemporary round house volume. The subsequent closures of all these monuments, whether with a recumbent stone or large pits, achieved a spatial certainty that would not have been generated by the more ambivalent architectural elements previously. This visible referencing of dimensions and architectural qualities of the Recumbent Stone Circle and its individual elements such as the entrance blocking may suggest that the timber structures originated from similar design concepts. These manifested in a consecutive sequence of events rather than individual, unconnected architectural products. The final design would have been already anticipated at the beginning, similar to the Recumbent Stone Circle, but had to proceed first through a series of building and rebuilding processes before its final form came into being. On this ontological journey, some of the timber structures could have been roofed while others may have lacked rigid enclosure.

ALTERNATIVE INTERPRETATION 3: CONTEMPORARY POSTRINGS NEGATING SPACE BY EMPHASISING TIME

The reason for having explored alternatives to Cameron's reconstruction – of all timber circles and the ring-groove as contemporary and roofed – are its spatial consequences. Three concentric postrings on average less than 1.5m apart and as little as 0.25m in places would have taken up almost all available interior space of such a structure (fig 6).⁹⁰ The “space” remaining between the posts would be more a series of elongated passages rather than an open area.⁹¹ These passages created what has been described as *dynamic space* rather than one commodious room for prolonged, static human activities.⁹² As dynamic and static spaces offer different spatial characters, their creation clearly constitutes a deliberate design feature. The post-rings at Candle Stane are of course permeable, and movement between them could have been free-flowing. However, quantity and frequency of post settings, if all posts were indeed contemporary at some point in time, restricted the use of such space more than

⁸⁹ Compare Bradley 2016c, 150.

⁹⁰ Compare Cameron 1999, 369; she also proposes that multiple posts could have supported an upper floor as main usable space.

⁹¹ Apart from possibly 9m² in centre.

⁹² Romankiewicz 2011, 45.

structurally necessary. Such a reconstruction suggests that static activities were architecturally not supported but dynamic ones were encouraged. If all posts were contemporary, one could argue that a structure was built to externally resemble a domestic round house, but its space filled with posts was rendered unusable for normative dwelling functions. The conspicuous consumption of building material and labour for a structure unsuitable for domestic activities could have represented a design statement in which a superficial architectural language quoted from domestic structures, but the result was not used as such. What other functions could be envisaged?

The space full of posts may have been designed not to be experienced as a large enclosed void, but as a series of semi-permeable passages that facilitated movement from the entrance to the centre and back. The dynamic character of these in-between spaces might have encouraged passage if not directed perambulation. An optimistic speculation about the Candle Stane timber structure, assuming archaeologically invisible partitions and interpreting close-set posts as blockings, could envisage a directed procession through the structure. One could conceive curvilinear passages lined by the posts and leaving options for labyrinthine twists and turns along the way.⁹³ Such a design would incorporate movement and represent a built manifestation of passage through time and space. At Candle Stane this could have constructed a journey of narrowing and widening spaces with “events” along the way such as represented by pit F48 or the stake-setting near the centre. Whether such a structure was roofed or not is of secondary relevance for this use.

If this speculation may sound too abstract for a prehistoric architectural context, a very figurative reminder of the existence of such architectural structures can be found in the Ancient Greek Stoa, a building type common from c.450 BC.⁹⁴ These colonnaded buildings in a public, often ceremonial context provided perambulatory space without a specific function. Uses could range from ritual, communal, commercial or administrative, or all of the above, be exclusive or inclusive, and varied across the Stoa’s long architectural history and geographical distribution.⁹⁵ Since such concepts of providing architectural structure to unstructured interpersonal events are documented for Ancient Greece, similar concepts could have developed in pre-historic societies, assuming that these had moved beyond mere subsistence strategies.

⁹³ The labyrinth marked out in paving of Chartres cathedral, France, for example, expresses a life’s journey as a spiralling pathway.

⁹⁴ Coulton 1976, 1, 7-8.

⁹⁵ Ibid, 8-10.

A post-filled interior at Candle Stane effected the deliberate filling of a void internal space with structure.⁹⁶ This essentially deconstructed what appeared to have been a round *house* interior as unusable and could be compared with deliberate acts of burning down houses at the end of their use life⁹⁷, or the burying of houses as seen in Scandinavia.⁹⁸ The act of, making a “house” unusable may be compared with practices known from continental Iron Age Europe, where precious objects were deliberately bent or broken to render them unusable prior to deposition. The sanctuary at Tintignac, France, where seven dismantled carnyces,⁹⁹ were placed into a pit with deformed swords, spearheads and other items best illustrates such practices. A parallel can be found geographically closer to Candle Stane at Deskford, Aberdeenshire, where a carnyx head removed from its tube was placed into a bog associated with a ceremonial enclosure.¹⁰⁰

CIRCULAR ARGUMENTS?

In its particular layout and setting the Candle Stane timber structures may be unique, and thus difficult to evaluate against comparable sites. However, Bradley describes three further small stone circles in Scotland with comparable reuses.¹⁰¹ One of these is the Recumbent Stone Circle at Strichen, about 50km northeast of Candle Stane. There, timber-built structures were directly inserted into the Early Bronze Age monument.¹⁰² As at Candle Stane, no artefacts were found with these later features, but two radiocarbon dates place them into the Late Bronze or Early Iron Age. The publication proposes two consecutive timber phases. A circular post setting, perhaps a timber circle, seems to have been built first, and it could not be conclusively demonstrated whether this structure was roofed or not.¹⁰³ A ring-groove on a different alignment was apparently secondary. With evidence for a tightly set palisade and structural similarities to other house plans in Britain this grove structure was interpreted as creating a roundhouse “effect”.¹⁰⁴ Although casting doubt on whether this structure was actually used as a house, the authors reconstruct a typical roundhouse shell within the stone

⁹⁶ Compare similar designs in Iron Age artwork, Romankiewicz 2018.

⁹⁷ Hunter 2011, 30.

⁹⁸ Eriksen 2016.

⁹⁹ I.e. animal headed trumpets, see Maniquet 2010.

¹⁰⁰ Hunter 2001.

¹⁰¹ Bradley and Nimura 2016.

¹⁰² Phillips et al. 2006.

¹⁰³ Ibid, 120-123.

¹⁰⁴ Ibid, 130.

circle without discussing alternative interpretations.¹⁰⁵ The referencing of the stone circle diameter as seen at Candle Stane was even more explicit at Strichen by placing the later structures *within* the stone circumference. Similar to Candle Stane, at least two separate built phases are proposed, with variable permeability of their outer shells, seemingly starting here as there with a timber ring, followed by a ring-groove structure that suggests more defined enclosure.

Similar referencing by insertion has now been confirmed at the Croftmoraig Stone Circle in Perth and Kinross.¹⁰⁶ Although previously considered as earlier,¹⁰⁷ Bradley's investigations in 2012 demonstrated that the timber structure was built subsequently into the stone circle, confirming a re-evaluation based on the pottery from the site.¹⁰⁸ Evidence for its Middle Bronze Age domestic use is compelling. The structure yielded diagnostic pottery usually associated with domestic contexts and its northern part included a pen-annular ditch, a wear pattern identified at other domestic sites in Aberdeenshire, like Old Meldrum, typically of Middle to Late Bronze Age date.¹⁰⁹ Such ditch wear has been interpreted as resulting from keeping animals and subsequent removal of dung and bedding matter.¹¹⁰ However, with a porch less than 0.40m wide, the Croftmoraig structure seems impractical for stalling animals inside.¹¹¹ Either it only referenced roundhouse architecture complete with replicating internal use but with an entrance that defies normative use,¹¹² or, the narrow porch was secondary, closing off the ring-ditch function. However, although the timber structure shows repair, nothing suggests that the porch was a later addition. The replacement of this timber structure with another stone circle confirms further rebuilding beyond a domestic context.

Another ring-ditch feature, similar to Croftmoraig, survives as an earthwork within the Recumbent Stone Circle at Loudon Wood, Aberdeenshire. Identified during field survey it has been interpreted as representing a "later timber round-house"¹¹³ and may prove similarly complex if excavated.

¹⁰⁵ Ibid, Illus 22.

¹⁰⁶ Bradley 2016d.

¹⁰⁷ Piggott and Simpson 1971.

¹⁰⁸ Bradley 2016d, 61, 71, 73. Pottery analysis: Bradley and Sheridan 2005.

¹⁰⁹ Bradley 2016c, 149; while ring-ditch wear occurs widely, these examples have their post-ring on the ring-ditch's outer edge, e.g. White and Richardson 2010, 22.

¹¹⁰ Pope 2003, 15, 23, 256; Compare Bradley 2016a, 126.

¹¹¹ Bradley 2016c, 149-50.

¹¹² Bradley 2016c, 150.

¹¹³ Welfare 2011, 161, 392.

At Loanhead of Daviot, about 20km east of Candle Stane, two curvilinear grooves form a rough circle immediately to the east of a Recumbent Stone Circle, and contain an area of cremation burials.¹¹⁴ No dimensional relationship between the cemetery enclosure and the heavily restored stone circle is immediately apparent. While flat-rimmed pottery of Late Bronze Age type suggests that both sites were revisited, no structural evidence comparable to Candle Stane has yet been identified. The reuse of the site fits with the general patterns observed here, even if the structural relations are more tentative than in the previous examples.

Beyond Scotland, architectural comparisons with the contemporary, concentric timber circle reconstruction alternative proposed here can be drawn with Iron Age sites like Navan Fort, Co. Armagh, Ireland,¹¹⁵ or the structures at Ballanorris or Ballacagen Lough on the Isle of Man¹¹⁶. In particular the large circular building at Navan, identified as Site B original phase 4, presents a multitude of concentric timber circles filling its entire interior enclosed by a double ring-groove, which seemingly blocked its entrance.¹¹⁷ Although its 40m diameter was more than twice as large as Candle Stane, its plan is to some extent reminiscent, and with a date range from the second to first century BC, this structure at Navan is roughly contemporary with the later phase at Candle Stane (fig 7).¹¹⁸ The Navan Fort structure appears to have been purpose-built for a ceremonial context.¹¹⁹ The excavator interpreted the linear-aligned post arrangements leading inwards from the entrance as an ‘ambulatory’ with post-lined aisles.¹²⁰ At the end of its possibly quite short use-life, the structure was filled in with small stones to create a cairn and burnt, then covered over with turf material.¹²¹ Although Lynn, based on Waterman’s work, interprets the evidence as one coherent architectural product,¹²² subtle evidence suggests an architectural sequencing guided by the idea of this final product. The outermost post-ring was for example laid out and likely built first, and Lynn argues convincingly that this then determined the positions of the first posts within the inner section of the double ring-groove, i.e. structure B-B’ (compare fig 7).¹²³ The

¹¹⁴ Kilbride-Jones 1935, 177-8; 1936, 291.

¹¹⁵ Lynn 1997.

¹¹⁶ Bersu 1977.

¹¹⁷ Lynn 1997, 36.

¹¹⁸ Lynn 1997, 184-5; the central post was dated to 95BC by dendrochronology.

¹¹⁹ Compare Bradley 2012, 125-36, placing such structures into wider chronological and geographical contexts.

¹²⁰ Lynn 1997, 165-69. The ambulatory arrangement suggests further architectural complexities as yet unexplored.

¹²¹ Ibid, 224.

¹²² Ibid, 213, re-organized into phase 5a-d.

¹²³ Ibid, 169-70.

buttressing, outermost ring-groove A-A' was abandoned when the additional posts were added to groove B-B', which suggests some rebuilding even if within a short period overall.

In the Neolithic, some structures such as the southern circle at Durrington Walls, Woodhenge, or the stone and timber monument at the Sanctuary at Overton Hill, display similar architectural characteristics as these Iron Age structures discussed here. The much earlier monuments have also seen detailed analyses of their complex building biographies,¹²⁴ and their complicated architectural sequences deserve further architectural analyses, comparable to the method applied here to the Candle Stane site. Together with the Candle Stane evidence, the related Iron Age structures in Scotland and Ireland, as well as the Bronze Age stone circles discussed here, may all reflect general concepts of how ceremonial space was created in later prehistory. Their evidence suggests that a monument's final appearance had to be generated over time, including a series of consecutive, carefully planned and executed processes. While architectural expressions varied in different prehistoric periods with different belief systems, certainly returning in the Iron Age to Early Bronze Age monuments to create new architectural processes may suggest that the underlying architectural concepts of how to design and materialize non-domestic structures were persistent and perhaps continued to be understood. The wider argument and further comparisons, especially regarding the Neolithic evidence, are beyond the scope of the present paper, but it is important to stress that the understanding of architectural design concepts could potentially have continued across several generations,¹²⁵ apparent in the revisiting of earlier monuments by design ideas as discussed here for Candle Stane.

Because Candle Stane is such an interesting yet enigmatic site and allows for so many different interpretations, it has become an ideal candidate for the author's teaching in Higher Education. As part of a postgraduate course on the archaeology of architecture taught at University of Edinburgh,¹²⁶ the ideas developed here for Candle Stane were used in a course exercise to teach visual competence, which Simon James has identified as a key skill for archaeologists in an increasingly visual world.¹²⁷ The students had to reconstruct their own interpretation of the Candle Stane timber structures, based on the reported evidence and information from the author's research. The exercise required the students to engage with the

¹²⁴ E.g. Musson 1971; Pollard 1992; Parker Pearson et al. 2007.

¹²⁵ As Bradley 2016b, 121 suggested for small stone circles in eastern Scotland, and Brophy 2007 for Neolithic Timber Halls.

¹²⁶ Course title: "Space, Place and Time: the archaeology of built environments".

¹²⁷ James 2015.

concept of alternative reconstructions and encouraged them to think in the third dimension when discussing archaeological remains of architecture. Since creativity was encouraged, their works added further alternative interpretations – to the class discussion, and also to be included here within this broader debate on the site’s original three-dimensional structures (figs 8 and 9). The student examples highlight that not one interpretation of the Candle Stane evidence can provide the ultimate answer, and that every new interpretation has the potential to expand our understanding of a site.

CONCLUSION

At the time of writing, Cameron had only few comparisons to draw on for her analysis of Candle Stane. Today, informed by Bradley’s work on Recumbent Stone Circles and the timber phases at Strichen and Croftmoraig discussed as structurally related to roundhouses, but seemingly charged with alternative meaning, Candle Stane can be more widely explored. Reappraisal of its timber structures identified several design references to the adjacent Recumbent Stone Circle. These parallels open the possibility for developing alternative interpretations and question *per se* domestic connotations for such timber structures.

Analysis of the Candle Stane evidence identified six out of the eight criteria proposed for non-domestic roundhouses. Only in terms of iconic representation or sculpture (8)¹²⁸ and lack of associated structured deposition (6) do the Candle Stane timber structures fail to score. Lack of evidence for an energy source (4) as well as lack of material culture (5) had been noted before. While the excavator had commented on the locational relations of the timber structures with the Recumbent Stone Circle on the site (2), it is their architectural design (1) that renders them so conspicuously non-domestic. This manifested not so much in size than in the overall architectural arrangements. The structure supported by the ring-groove referenced exactly the outer dimensions of the stone circle. Another timber circle might share the dimension and position of the cairn within the stone circle. The grading of post heights could have, for all we know, mirrored that of the monoliths. The closure of the stone circle by the recumbent could arguably be reflected in the pit sequence in front of the entrance to the timber structures. Retro-inference of ritual connotations (7) from a later ritual site would not apply in Harding’s sense, but because of the timber structures’ proximity to the

¹²⁸ Numbers refer to list above.

earlier ceremonial monument and their multiple references to it, an inference projecting from the earlier evidence could be made.

Beyond such direct evidence, the complex, ambiguous spatial characters of the different elements of the timber structure (3) may also suggest conceptual parallels with the space-generating qualities of the stone circle. Since not all of these timber elements were necessarily roofed, enclosing, or contemporary, this further questions the structure's function for domestic use. Both stone and timber circles can be understood to represent a series of architectural events, designed from the outset and deliberately staged to arrive at their final products: an architectural narrative.¹²⁹ The timber phases at Candle Stane are, however, too heavily truncated to propose more specific reconstructions or favour one interpretation instead of others. Alternatives could range from representing a series of rebuilds in approximately the same location and diameter, or a clustering of posts which rendered the enclosed space unusable and thus deconstructed what may have appeared to have been a domestic interior.

By expanding the list of criteria for identifying non-domestic roundhouses, and by exploring new ideas about the architectural concepts underlying non-domestic architecture in later prehistoric Scotland, the analysis presented of Candle Stane can now be transferred to other ambiguous structures. The pseudo-domestic evidence for the timber structure within the Croftmoraig stone circle sounds a warning not to assume domestic use almost by default. If more non-domestic roundhouses can be identified, this raises social and cultural but also economic questions, in particular for marginal areas which have been regarded as facing environmental and economic stresses in the Iron Age. If substantial timbers could be expended on the creation of "useless space" in a narrow, subsistence-focused meaning, this implies that expenditure of material, land and labour for communal or ceremonial purposes was sanctioned. If more structures superficially labelled as domestic turn out to have been for different functions, prehistoric settlement patterns and their density will have to be reviewed. In this context, Pope's association of roundhouses without hearths but combined with material culture indicative of seasonal use should also be considered.¹³⁰ The detailed analysis of the Candle Stane structures in their wider British and Irish context has demonstrated what can be gained from questioning whether domestic contexts can be readily assigned to post-

¹²⁹ Compare Bradley 2005, 49.

¹³⁰ Pope 2003, 253.

ring structures, or whether we should more cautiously explore the architectural and archaeological detail for alternative, more complex explanations.

Adding the results of the postgraduate course exercise described above to the author's research findings presents one example of how even ephemeral archaeological remains, derived from a rescue archaeology situation, can stimulate academic research as well as be useful for teaching important archaeological and transferable skills. Such "thinking-in-alternatives" can be practiced in a Higher Education context, or indeed in other educational or outreach work to engage a viewer reflectively by presenting different, often conflicting images. This approach disrupts over-immersive tendencies, especially of photo-realistic reconstructions to emphasize that our modern visualisations and interpretations can only ever be approximations. Every new engagement with a site can add further detail to its story.

ACKNOWLEDGEMENTS

This research has been funded by Aberdeenshire Council, smaller initiative grants from the University of Edinburgh and most of all the Leverhulme Trust as an Early Career Fellowship (grant no. ECF-2014-424: Building (Ancient) Lives). I am very grateful for their support. Thank you to the two anonymous referees for their thoughtful comments, and also to the participants of the First Millennium Studies Group seminar in April 2015 for their stimulating debate about the presentation of this research. Further special thanks to Richard Bradley, Strat Halliday, Maya Hoole, Fraser Hunter, Rodger Mercer and Adam Welfare for more detailed discussion of individual aspects. All interpretations and errors, however, remain my own. A particular thank-you to all PG students of the course "Space, Place and Time" for their creative engagement with the site and in particular to Meg Moodie, Jessica Pettitt, and Melanie Magolan for allowing me to publish their visual interpretations.

Figures:

Fig 1. Map of Scotland with inset showing distribution of sites selected for analysis and comparison. © Tanja Romankiewicz, Craig Angus

Fig 2. General plan of the Candle Stane site, combining excavation and survey results (Cameron 1999, Illus 2; Welfare 2011, 323). *Correlation* © Tanja Romankiewicz

Fig 3. Reconstruction proposed by excavator with all rings as contemporary; radiocarbon-dated features marked (Cameron 1999, Illus 3, 367-368). *Correlation* © Tanja Romankiewicz

- Fig 4. Reconstruction alternative 1: ring-groove and contemporary postrings; later elaborate entrance arrangement (after Cameron 1999, Illus 3). © Tanja Romankiewicz
- Fig 5. Reconstruction alternative 2: eccentric 13m postring and possible 7m postring; early entrance arrangement (after Cameron 1999, Illus 3). © Tanja Romankiewicz
- Fig 6. Reconstruction alternative 3: multi-phase postrings (a) and photographic reconstruction of interior (b) (after Cameron 1999, Illus 3). © Tanja Romankiewicz
- Fig 7. Circular multi-ring timber structure at Navan Fort, Co. Armagh, site B original phase 4 (after Lynn 1997, Fig 15); posthole outlines omitted and post-size exaggerated for visual clarity, posts relating to ambulatory highlighted with some reinterpretation (a); the final monument as a turf mound in 2017 (b). © Tanja Romankiewicz
- Fig 8. Visual interpretations by postgraduate students. Top row (a) and (b): two concentric timber rings enclosed by ring-groove wall, mirroring stone circle © Meg Moodie; centre row (c) and (d): roundhouse utilising middle postring and ring-groove to create upper peripheral gallery © Jessica Pettitt; bottom row (e) and (f): roundhouse utilising inner postring and ring-groove to create upper central floor © Melanie Magolan.
- Fig 9. Visual interpretation by postgraduate students. Top: posts arranged in spiral pattern (a); centre: spiral timber arrangement at 1m height (b); bottom: spiral timber arrangement at 2m height (c). © Melanie Magolan. *N.B.: Base plan in illustration 9a is indicative only, reproduced here at an angle for technical reasons to create the digital reconstruction. The full detail of this plan can be seen in Figure 3.*

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